

**Assoc. Prof. Duygu Sag** received her BSc degree from the Department of Biology of the Middle East Technical University in 2003 (Ankara, Türkiye). In 2009, she received her PhD degree in immunology from the University of Louisville School of Medicine (Louisville, KY, USA). Between 2009-2015, she worked as a postdoctoral fellow at the La Jolla Institute for Immunology (San Diego, CA, USA). She is currently a faculty member at the Dokuz Eylul University School of Medicine and a Research Group Leader at the Izmir Biomedicine and Genome Center (iBG) (Izmir, Türkiye). Dr. Sag's research focuses on the metabolic regulation of macrophage polarization in cancer with the aim to discover novel targets for cancer immunotherapy. Her work is supported by many national and international grants including the H2020 Marie Curie RISE on death receptor signaling in the tumor microenvironment. Based on the high quality of her research, she has received many prestigious international and national awards from the UNESCO/Loreal, the American Heart Association, the Society for Leukocyte Biology, the University of Louisville School of Medicine, Turkish Academy of Sciences, METU Parlar Foundation, Turkish Society of Immunology, Science Academy Turkey and the Turkish Association for Cancer Research and Control.



### **Lab-Apoptosis:**

Apoptosis is a form of programmed cell death. In normal cells, phosphatidylserine (PS) is located in the inner leaflet of the plasma membrane. However, during apoptosis, PS translocates to the outer leaflet. The protein Annexin V can bind to PS; therefore, can be used in flow cytometry to identify apoptotic cells. In this laboratory session, we will cover apoptosis detection by Annexin V staining and flow cytometry analysis.

### **Relevant Literature:**

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2. Hanna RN, Cekic C, **Sag D**, Tacke R, Thomas GD, Nowyhed H, Herrley E, Rasquinha N, Peluso E, McArdle S, Wu R, Metzger D, Ichinose H, Shaked I, Chodaczek G, Biswas SK, Hedrick CC, 2015. Patrolling Monocytes Control Tumor Metastasis to the Lung. *Science*, 350(6263):985-90.
3. **Sag D**, Ayyildiz ZO, Gunalp S, Wingender G., 2019, The Role of TRAIL/DRs in the Modulation of Immune Cells and Responses. *Cancers*, 11(10). pii: E1469.
4. Unuvar Purcu D, Korkmaz A, Gunalp S, Helvacı DG, Erdal Y, Dogan Y, Wingender G, **Sag D**, 2022. Effect of stimulation time on the expression of human macrophage polarization markers. *PLoS One*, 17(3):e0265196.

5. Korkmaz A, **Sag D**, 2022. Medicinal Plant *Tinaspora Cordifolia* Polarizes Primary Human Macrophages into an M1 Phenotype. *Turk J Immunol.* 2022; 10(1): 34-45.